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Physiotherapeutic rehabilitation of an elderly patient with neurocysticercosis-associated hemiparesis: A case study

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Abstract
Neurocysticercosis (NCC), caused by the larval stage of *Taenia solium*, is a frequent etiology of acquired epilepsy in low- and middle-income countries. This case involves a 72-year-old male with parenchymal NCC presenting with seizures, hemiparesis, balance deficits, and mobility impairment. Medical therapy included albendazole, corticosteroids, and antiepileptic medication. Physiotherapy was initiated early to target strength deficits, poor balance, and reduced ambulation. A 4-week FITT-structured rehabilitation program resulted in marked improvements in Berg Balance Scale, Modified Rankin Scale, ambulation speed, and motor strength. This report highlights physiotherapy as a valuable adjunct to medical care, especially in elderly NCC patients at risk of long-term disability.

Keywords: Neurocysticercosis, hemiparesis, physiotherapy rehabilitation, balance and mobility, elderly patient

Introduction
Neurocysticercosis (NCC) is a parasitic infection of the central nervous system (CNS) caused by the encysted larval stage (*Cysticercus cellulosae*) of the pork tapeworm *Taenia solium*. It is considered the most common helminthic infection affecting the human CNS and remains a significant global health burden, particularly in developing regions across Latin America, Southeast Asia, India, Africa, and Eastern Europe. NCC develops following the accidental ingestion of *T. solium* eggs shed in human faeces, typically through contaminated food, water, or poor hygiene practices. Once ingested, eggs hatch in the intestine, releasing oncospheres that penetrate the intestinal mucosa and disseminate via the bloodstream to lodge in tissues such as the brain, spinal cord, eyes, muscles, and subcutaneous tissue (Del Brutto *et al*., 2014; Coyle *et al*., 2012) [3, 9].

The brain is the most clinically significant site of involvement and largely determines the symptomatic presentation. Neurocysticerci progress through several pathological stages—vesicular, colloidal, granular nodular, and calcified—each producing distinct inflammatory responses and clinical features (Sorvillo *et al*., 2007) [22]. Although active vesicular cysticerci may remain asymptomatic for long periods, degenerating lesions provoke inflammation, oedema, and gliosis, resulting in seizures, raised intracranial pressure, meningitis, hydrocephalus, focal neurological deficits, and cognitive impairment (White *et al*., 2018; Singh & Burneo et.al., 2013; Garcia *et al*., 2016) [8, 21, 25]. NCC is recognised as the leading cause of acquired epilepsy worldwide and contributes substantially to seizure disorders in endemic areas. The World Health Organization estimates that approximately 2.5 million individuals globally experience epilepsy secondary to NCC. In older adults, the clinical picture is further complicated by age-related decline, comorbidities, cerebral atrophy, and diminished immune function, all of which exacerbate recovery challenges (Fleury & Hernandez *et al*., 2010; Rajshekhar *et al*., 2004; Prasad *et al*., 2008) [6, 17, 18].

Diagnostic confirmation of NCC primarily relies on neuroimaging—computed tomography (CT) and magnetic resonance imaging (MRI)—which may reveal cystic lesions, visible scolex, calcifications, ring enhancement, or perilesional oedema (Lin & Lee *et al*., 2015) [15]. Serological testing, including enzyme-linked immunoelectrotransfer blot (EITB) and ELISA assays, provides additional support by detecting parasite-specific antibodies or antigens. Once diagnosed, management typically includes antiparasitic medications such as albendazole and praziquantel, corticosteroids to mitigate inflammation, and antiepileptic drugs including levetiracetam or phenytoin to control seizures. Surgical intervention—such as cerebrospinal fluid diversion—may be necessary in cases involving hydrocephalus or intraventricular cysts (Gandolfi *et al*., 2020[7]; Kleim & Jones *et al*., 2008) [12].

Despite adequate pharmacological therapy, residual neurological deficits are common, especially among individuals with multiple degenerating or calcified cysts. Patients may present with persistent motor weakness, impaired balance, gait abnormalities, cognitive slowing, fatigue, and reduced functional independence in activities of daily living (ADLs) (Garcia *et al*., 2016; Prasad *et al*.,2008; Shepherd *et al*., 2010) [2, 8, 17]. Elderly individuals are particularly susceptible to long-term disability due to underlying sarcopenia, decreased cardiorespiratory reserve, postural instability, osteoporosis, sensory decline, medication burden, and reduced neuroplastic capacit. As a consequence, NCC-related disability in older adults may progress to chronic functional impairment if rehabilitation is not initiated promptly and systematically (Krakauer *et al*., 2017; Cruz-Jentoft *et al*., 2019) [4, 13].

Physiotherapy and neurorehabilitation play a vital yet often under-recognised adjunctive role in NCC management. Physiotherapy addresses several mechanisms of NCC-related disability, including corticospinal weakness, post-ictal paresis, cerebellar ataxia, fear-related inactivity, deconditioning from prolonged bed rest, and chronic fatigue (Wallin & Kurtzke *et al*., 2012; Rubenstein *et al*., 2006) [19, 24]. Evidence demonstrates that structured physiotherapy interventions—integrating strengthening, balance retraining, gait rehabilitation, neuromuscular facilitation, and functional task practice—promote neuroplasticity, improve cortical reorganisation, enhance community mobility, and reduce fall risk in neurological populations. The FITT (Frequency–Intensity–Time–Type) principle provides a systematic framework for individualising and progressing rehabilitation—an important consideration for elderly NCC patients who may fatigue easily or have variable tolerance (Ndimubanzi *et al*., 2010; Law *et al*., 2014; Herdman *et al*., 2014) [10, 14, 16].

Given these considerations, this case report highlights the essential role of physiotherapy in addressing NCC-associated neurological impairment. Through a structured 4-week rehabilitation programme progressing from bed-level activation to community reintegration, this report demonstrates how physiotherapy can contribute to meaningful improvements in balance, gait, strength, cognition, and overall functional independence in elderly individuals with NCC (Herdman *et al*., 2014) [10].

Case Presentation

A 72-year-old retired schoolteacher was brought to the emergency department after a generalized tonic-clonic seizure. MRI brain showed multiple parenchymal cystic nodules with one scolex, consistent with active-stage NCC.

Symptoms on admission

- Right-sided weakness
- Imbalance and fear of falling
- Difficulty walking and transfers
- Mild confusion and cognitive slowing
- Fatigue and reduced endurance

History

Present History

- **Symptom onset:** 2 weeks prior
- **Progression:** Gradual worsening of walking and limb use
- **Current:** Bed-to-chair transfer requires assistance, ambulates only with help

Past History

- Diabetes Mellitus type-2 (5 years)
- Hypertension (10 years)
- No alcohol/smoking
- Lives in rural area; possible exposure to infected food/poor sanitation

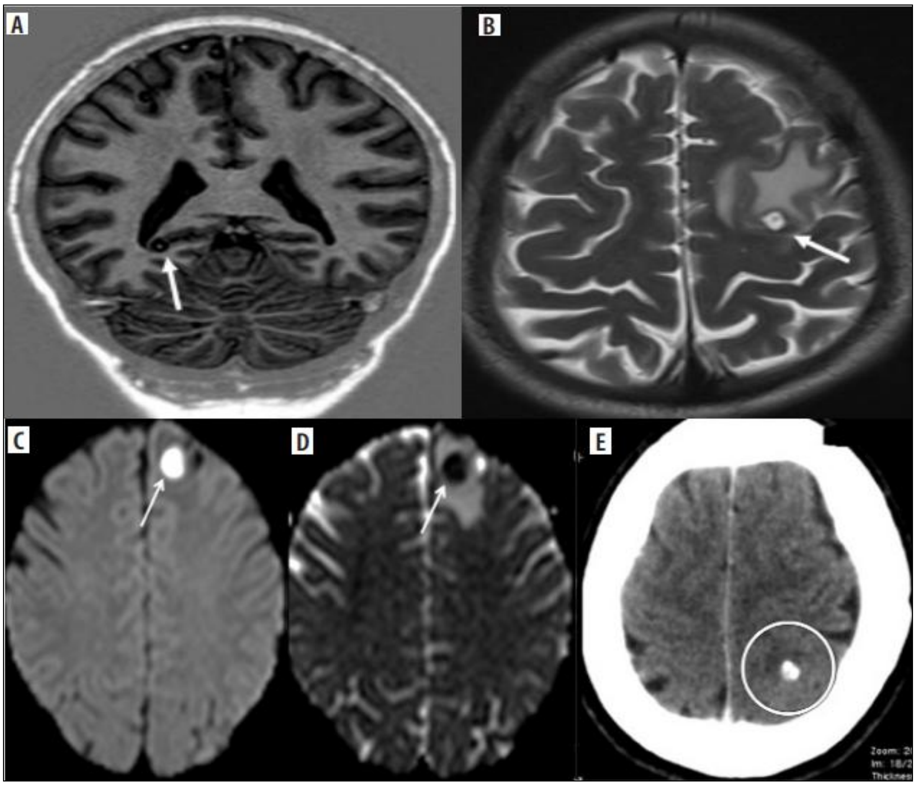
Examination & Physiotherapy Assessment

Parameter	Finding
Tone	Mild hypotonia R-side
Sensation	Intact
Reflexes	Hyperreflexia on R-side
MMT	R-UL: 3/5; R-LL: 3/5
ROM	Reduced shoulder flexion & knee flexion
Balance	Poor static/dynamic
MMSE	24/30
Function	Dependent

Outcome Measures – Baseline

- Berg Balance Scale (BBS): 18/56
- Modified Rankin Scale (mRS): 4
- 10-Meter Walk Test: unable
- MMSE: 24/30

Mri Scan



Physiotherapy Intervention
Fitt based (4 weeks)

Week	Frequency	Intensity	Time	Type (Interventions)
Week 1 (Bed-Level + Sitting Work)	Daily, 6 days/week	Low intensity	45–60 min/day	Passive-active ROM, breathing exercises (10–12 breaths/min), bed mobility, bridging (3×10), sitting balance supported 10–15 min, isometrics for R-UL/LL (3×10), caregiver training
Week 2 (Transition to Standing)	Daily, 6 days/week	Light-moderate intensity	60 min/day	Sit-to-stand (3×8), theraband strengthening (yellow band) 3×10, balance board supported 5 min, stepping practice, walker-assisted gait 10 m×3, endurance walk 5 min
Week 3 (Dynamic Gait & PNF)	Daily, 6 days/week	Moderate	60–75 min/day	PNF D1/D2 patterns for UL/LL, stair training 3 steps×3, obstacle walking, dual-task gait, lower-limb strengthening with resistance band (red) 3×12, circuit training for balance
Week 4 (Functional Reintegration)	6 days/week	Moderate–High	75–90 min/day	Community ambulation 100–150 m, tandem stance, ADL simulation (cooking/grasp-release tasks), independent gait with cane, aerobic walk 10 min, HEP planning

Week 1 – Acute Phase (Bed-level to Sitting Tolerance)
Rehabilitation Goals: Prevent deconditioning, initiate muscle activation, improve bed mobility, stimulate neuroplasticity, build sitting balance

FITT Component	Prescription
Frequency (F)	6 days/week (daily except Sunday)
Intensity (I)	Low intensity – Borg RPE 9–10/20; no overexertion; monitor vitals due to age & medications
Time (T)	45–60 minutes/session including rest
Type (T)	▪ Passive–Active ROM for UL & LL (10 reps/joint × 2 rounds) ▪ Breathing exercises – diaphragmatic & pursed-lip breathing (10–12 breaths/min × 10 mins) ▪ Incentive spirometry – 20 reps every 2-3 hours ▪ Bed mobility retraining – rolling, bridging (3 sets × 10) ▪ Isometrics – quadriceps, hamstrings, biceps, triceps (3 × 10 × 5 sec hold) ▪ Sitting balance training on edge of bed (5–10 mins) ▪ Caregiver training – safe repositioning, guarding techniques, falls precautions

Week 2 – Transition Phase (Sit-to-Stand, Static Standing & Assisted Walking)
Rehabilitation Goals: Improve transfers, initiate upright posture, early ambulation with assistive device, increase joint ROM & strength

FITT Component	Prescription
Frequency (F)	6 days/week
Intensity (I)	Light–Moderate (Borg RPE 10–12/20)
Time (T)	60 minutes/session
Type (T)	▪ Sit-to-Stand training using therapist support (3 sets × 8 reps) ▪ Strengthening with Theraband – Yellow Band (UL & LL major groups × 3 sets × 10 reps) ▪ Supported static standing at walker (3 trials × 2 min each) ▪ Weight-shift training – lateral & AP (10 reps each) ▪ Gait training with walker – 10 m × 3 repetitions ▪ Endurance walk – 5 minutes continuous with rests ▪ Balance board (supported) – 3 × 1 min ▪ Stretching for calf/hamstrings (3 × 20 sec)

Week 3 – Functional Ambulation & Motor Control Progression
Rehabilitation Goals: Improve dynamic balance, coordination, gait quality, stair negotiation, increase lower-limb strength

FITT Component	Prescription
Frequency (F)	6 days/week
Intensity (I)	Moderate (Borg RPE 12–13/20); monitor for fatigue & seizure threshold
Time (T)	60–75 minutes/session
Type (T)	▪ PNF patterns D1/D2 UL & LL (3 × 8 reps) ▪ Stair training – 2–3 steps ascend/descend × 3 rounds ▪ Obstacle walking – cones, directional changes (5 mins) ▪ Dual-task gait – counting backward, object carry tasks (5 mins) ▪ Resisted LL strengthening with Red Band – hip flexors, knee extensors, ankle DF (3 × 12) ▪ Balance circuit training – tandem stance, foam standing, step-ups (3 rounds × 2 min each) ▪ Aerobic walking 8 mins continuous ▪ Functional task practice – reaching, grasp-release, cup lifting

Week 4 – Community Ambulation & ADL Reintegration

Rehabilitation Goals: Promote independence, reduce fear of falling, restore participation in meaningful activities, prepare for discharge

FITT Component	Prescription
Frequency (F)	6 days/week + daily home exercises
Intensity (I)	Moderate–High (Borg RPE 13–14/20 depending tolerance)
Time (T)	75–90 minutes/session
Type (T)	▪ Outdoor/Community ambulation – 100–150 meters with supervision ▪ Dynamic balance – tandem walking, head-turn walking (3 × 2 mins) ▪ Task-specific ADL simulation – toileting transfer, kitchen counter reaching, dressing tasks (10–15 mins) ▪ Independent gait training with cane – 15–20 m × 3 reps ▪ Aerobic training – 10-min brisk walk or cycle ergometer (if available) ▪ Home Exercise Program (HEP) prescribing ROM + strengthening 15 mins/day ▪ Patient & family education – fall-proof home modifications, emergency seizure protocol

Week-wise Improvement Tables

1. Outcome Measures Progress

Measure	Baseline	Week-1	Week-2	Week-3	Week-4
BBS	18	20	29	36	42
mRS	4	4	3	3	2
10-MWT Speed	Unable	—	0.85 m/s (walker)	1.0 m/s (walker)	1.1 m/s (cane)
MMSE	24	24	25	26	27

2. ROM – Right Upper Limb (°)

Joint	Normal	Baseline	Wk-1	Wk-2	Wk-3	Wk-4
Shoulder flexion	0–180	0–90	0–100	0–120	0–135	0–150
Shoulder abduction	0–180	0–85	0–95	0–110	0–130	0–145
Elbow flexion	0–150	0–110	0–120	0–130	0–140	0–145

ROM – Right Lower Limb (°)

Joint	Normal	Baseline	Wk-1	Wk-2	Wk-3	Wk-4
Hip flexion	0–120	0–80	0–90	0–100	0–110	0–115
Knee flexion	0–135	0–70	0–85	0–100	0–115	0–125
Ankle DF	0–20	0–5	0–8	0–10	0–12	0–15

3. Muscle Strength – MMT (Right UL & LL)

Muscle Group	Baseline	Wk-1	Wk-2	Wk-3	Wk-4
Shoulder flexors	3/5	3/5	3+/5	4-/5	4/5
Elbow flexors	3/5	3/5	3+/5	4-/5	4/5
Hip flexors	3/5	3/5	3+/5	4-/5	4/5
Knee extensors	3/5	3+/5	4-/5	4/5	4+/5
Ankle DF	3/5	3/5	3+/5	4-/5	4/5

Week Follow-Up (Post-Discharge Tele-Rehabilitation + Home Program)

Six weeks after completing the 4-week in-hospital physiotherapy program, the patient was reviewed in the outpatient physiotherapy department and via scheduled tele-follow-ups. He was compliant with the prescribed Home Exercise Program (HEP) for approximately 20–25 minutes per day on 5–6 days/week, as confirmed by caregiver reports. He continued to experience mild fatigue in the afternoon but denied recurrence of seizures. Vital parameters remained stable during exercise.

Functional Status at 6 Weeks

- Ambulation independent indoors without cane; uses cane only outdoors
- Can climb 6–7 steps with unilateral handrail support
- Performs toileting, dressing, and feeding independently
- Mild difficulty persists in fine motor tasks of the right hand (buttoning, handling coins)
- No reported falls, fear-of-falling score reduced (subjective)

Outcome Measures – 6-Week Follow-Up

Measure	Baseline	At 4 Weeks	6-Week Follow-Up
Berg Balance Scale (BBS)	18/56	42/56	46/56
Modified Rankin Scale (mRS)	4	2	2
10-Meter Walk Test	Unable	1.1 m/s (cane)	1.2 m/s unaided
MMSE	24/30	27/30	27/30

3-Month Follow-Up (Long-Term Rehabilitation Outcome)

At 3 months, an in-person examination was performed.

The patient reported engaging in light gardening and resumed routine morning walks of approximately 600–800 meters daily. He also rejoined his community reading club once a week, indicating psychosocial reintegration. He reported occasional right-shoulder stiffness in cold weather, for which stretching and heat-pack advice was given. There were no seizure relapses or hospital re-admissions.

Physical Examination:

- **Gait:** Normal pattern, slight reduction in right ankle push-off
- **Balance:** Able to tandem stand × 10 seconds
- **Upper limb function:** Grip strength improved; handwriting legible but slower than premorbid level
- **Cognition:** Oriented × 3; mild short-term recall deficit persists

3-Month Outcome

Parameter	Status
ADL Independence (Barthel Index)	95/100 – Independent
Gait Status	Independent indoors and outdoors; occasional cane uses only on uneven terrain
Return to community participation	Yes
Quality of Life (self-report)	Improved sleep, appetite, confidence

Result

A structured FITT-based physiotherapy rehabilitation programme, the patient demonstrated continual improvement in clinically meaningful ways across all functional domains. At the time of admission, the patient demonstrated severe limits to mobility, balance, and independence. He was unable to walk, had poor postural control and was dependent on others for daily living activities. The recovery during the four weeks of rehabilitation was gradual but steady, indicating a favourable response to early and progressive physiotherapy treatment of neurocysticercosis.

Significant improvements were observed in postural stability and balance within the population participating in the intervention program. The participant's Berg Balance Scale score increased from an initial score of 18/56 to a score of 42/56 at week four of the intervention, indicating that the individual had decreased the risk of future falls and improved his or her ability to maintain static and dynamic balance. The participant continued to demonstrate improvement at the six-week follow-up, where his or her Berg Balance Scale score was 46/56. As the participant progressed through the intervention, he or she went from requiring full assistance to sit and stand, to being able to achieve standing independently, tandem standing and performing dynamic balance tasks independently

Substantial improvement in functional mobility and gait performance. Initially, patient was not able to perform the 10 Meter Walk Test because of severe weakness and fear of falling. By week 2, patient was able to use walker to ambulate. And by the end of week 4, patient achieved a walking speed of 1.1 m/s with cane, indicating that patient is able to ambulate functionally in community. Patient is now independent in ambulating outdoors and indoors at follow up at six weeks and three months, and was walking distances of up to 800 meters on a daily basis. Patient's gait quality showed improved symmetry, increased step lengths, and increased foot clearance with only slight residual decrease in right ankle push-off.

The rehabilitation process has resulted in a significant increase in muscle strength and range of motion at the joints over the course of the rehabilitation process. Manual Muscle Testing demonstrated an increase in muscle strength on the right side's upper and lower extremities, where muscle strength increased from an initial score of 3/5 to a discharge score of 4/5–4+/5. Over the course of the rehabilitation process, the range of motion of the right side's shoulder, hip, knee, and ankle has continued to improve, allowing for improved coordination of movement patterns and improved reach and functional ability during routine daily activities.

As rehabilitation advanced, there were excellent gains in a patient's functional independence. The Modified Rankin Scale indicated a significant improvement in the patient's disability classification, going from a score of four at baseline to two at discharge. This score indicates that the patient went from a moderate to severe disability classification to functional independence with a very minor degree of limitation with some functional capabilities

Cognitively, patients demonstrated improvements in psychosocial participation throughout their rehabilitation process. The patient's MMSE (Mini-Mental State Examination) scores increased from 24 out of 30 pre-Rehabilitation on the first day after admission to 27 out of 30 at the end of the rehabilitation period. Patients showed improvements in attention, orientation, and task completion on the MMSE. Cognitive-motor integration may have been aided by dual-task gait training and functional task practice.

In conclusion, these findings indicate that developing a physiotherapy program based on the unique needs of each person with NCC can provide very significant long-lasting benefits to balance, mobility, strength, cognition and quality of life. The benefits from these types of programs further emphasise the need for rehabilitation in the full management of NCC.

Discussion

Neurocysticercosis (NCC) represents the most prevalent helminthic infection of the central nervous system and is a major contributor to neurological disability and epilepsy in endemic regions (Del Brutto *et al*., 2014; Coyle *et al*., 2012) [3, 9]. While pharmacologic therapy addresses parasitic death and inflammation, rehabilitation is essential for managing long-term functional impairment, particularly in elderly patients who are vulnerable to persistent motor deficits, balance dysfunction, falls, and reduced independence (Prasad *et al*., 2008; Lin & Lee *et al*., 2015) [15, 17]. In this case, the 72-year-old patient presented with parenchymal NCC and right-sided hemiparesis—an uncommon but recognised manifestation linked to focal motor cortex involvement or post-ictal weakness (Sorvillo *et al*., 2007; Singh & Burneo *et al*., 2013) [21, 22].

Physiotherapy intervention had to consider multiple interacting physiological factors: the natural decline of skeletal muscle mass with age (sarcopenia), reduced motor unit recruitment, impaired neuromuscular signalling, and slower neuroplastic responses in older adults (Cruz-Jentoft 2019) [4]. These age-related issues necessitated a carefully titrated FITT-based rehabilitation approach to ensure safe progression, minimise fatigue, and avoid triggering seizures through hyperventilation or excessive exertion.

The use of task-oriented motor learning, PNF patterns, and balance re-education aligns with principles of neuroplasticity, which highlight that frequent, meaningful, and repetitive practice enhances cortical remapping and synaptic strengthening (Kleim & Jones *et al*., 2008; Krakauer *et al*., 2017) [12, 13]. Improvement in outcome measures—particularly the Berg Balance Scale and 10-meter walk test—reflects increased sensorimotor integration, postural stability, and gait normalisation. Literature further indicates that repetitive gait practice combined with multisensory feedback improves spinal-cortical loop efficiency and reduces maladaptive compensatory patterns often observed in chronic neurological conditions (Gandolfi *et al*., 2020; Krakauer *et al*., 2017) [7, 13].

The structured weekly progression—from bed-level tolerance to assisted standing, dynamic ambulation, and eventual community mobility—mirrors recovery patterns documented in stroke and CNS-infection rehabilitation models (Carr & Shepherd *et al*., 2010; Wallin & Kurtzke *et al*., 2012) [2, 24]. Strength training against gravity and resistance bands helped counter sarcopenia-mediated muscle atrophy, while balance-focused tasks such as tandem stance and dual-task walking enhanced anticipatory postural adjustments, thereby reducing fall risk. Dual-task training also addresses mild cognitive impairment, consistent with evidence that cognitive–motor integration exercises improve attention and executive functioning in older neurological patients.

Caregiver involvement was a key determinant of rehabilitation success. It reduced anxiety, increased confidence, and supported active engagement with home exercises. In NCC, fear of seizures and falls often results in disuse and psychological withdrawal, contributing to rapid deconditioning. Patient education therefore served both therapeutic and psychosocial roles (Tyson *et al*., 2006) [23].

Despite the positive outcomes, several clinical challenges remain. Physiotherapy must be continuously adapted to fluctuations in the inflammatory burden of NCC; during steroid tapering, fatigue and mood changes can limit participation. Antiepileptic medications can induce sedation or muscle weakness, requiring careful adjustment of exercise intensity (Garcia *et al*., 2016) [8]. Moreover, neuroimaging may continue to reveal calcified lesions even after clinical improvement, indicating persistent seizure risk. Given these factors, rehabilitation should ideally extend beyond the four-week inpatient model and continue for 6–12 months through community-based physiotherapy, fall-prevention strategies, and periodic functional reassessment.

This case demonstrates that physiotherapy is not merely supportive but restorative, with measurable improvements indicating true neuromotor recovery rather than compensatory adaptation. While most literature on NCC emphasises medical therapy, this report highlights that early, progressive rehabilitation in geriatric NCC can substantially reduce disability and enhance quality of life—supporting the need for formal integration of physiotherapy into NCC clinical care pathways (Amatya *et al*., 2017; Ndimubanzi *et al*., 2010) [11, 16].

Conclusion

Neurocysticercosis continues to be a prominent but overlooked cause of neurological impairments in older persons in endemic areas. Parasiticidal and anti-seizure therapies are the mainstays of treatment for NCC. However, this case example illustrates the essential therapeutic role of physiotherapy in achieving optimum recovery and restoring function, especially when neurological symptoms continue to afflict patients post-acutely. In this 72-year-old man with parenchymal NCC and right hemiparesis, commencing a structured and progressive rehabilitation programme eight weeks after diagnosis yielded significant improvements in motor, balance, gait, cognitive and participatory functions.

Physiotherapy not only helped with physical performance but also improved individuals' independence in their daily activities, ability to socialise, confidence and overall quality of life, collectively supporting the holsitic view of the role of physiotherapy for people living with NCC. Improvements in ACVM were sustained at six weeks and three months following rehabilitation, attesting to the continuity of care facilitated by regular home exercise programs, ongoing caregiver education and tele-rehabilitation support. Caregiver involvement was key to helping sur*vivo*rs stick to rehabilitation, and assisting with the emotional and psychological supports that may be necessary to help them safely participate in rehabilitation.

The finding in this case suggests that older patients with a diagnosis of NCC are at a greater risk to experience extended periods of disability if rehabilitation is delayed or not given full consideration. With respect to factors associated with aging, sarcopenia (muscle loss), balance decline, and decreased neuroplasticity make it imperative that older adults receive focused and progressive physiotherapy as quickly as possible to avoid prolonged dependence. Therefore, since this case documents successful outcomes with physiotherapy, we believe that physiotherapy should be added to existing NCC management protocols with the addition of pharmacological intervention.

Physiotherapy should be considered as part of overall NCC care, rather than as an additional service. Physiotherapy should begin as soon as possible, with structured progression based on the FITT principle (Frequency, Intensity, Time, Type), caregivers being involved in treatment, and long-term follow-up of patients having the potential to greatly reduce disabillity, increase independence in function and thus improve their quality-of-life within patients over 50 years of age. Rehabilitation pathways in NCC must be recognised in future clinical guidelines, and be developed for research, as this is a very neglected but serious neurological problem.

References

1. Berg KO, *et al*. Measuring balance in the elderly: validation of an instrument. Physical Therapy,1992:72(11):546–556.
2. Carr JH, Shepherd RB. Neurological rehabilitation: optimizing motor performance. Oxford: Butterworth-Heinemann, 2010.
3. Coyle CM. Neurocysticercosis: an update. Clinical Microbiology Reviews,2012:25(1):39–56.
4. Cruz-Jentoft AJ, *et al*. Sarcopenia: revised European consensus. Age and Ageing,2019:48(1):16–31.
5. Del Brutto OH. Neurocysticercosis. Neurology,2001:57(2):177–183.
6. Fleury A, Hernandez M. Neurocysticercosis: pathophysiology and treatment. Journal of the Neurological Sciences,2010:290(1–2):1–6.
7. Gandolfi M, *et al*. Neuroplasticity and rehabilitation. European Journal of Physical and Rehabilitation Medicine,2020:56(3):350–357.
8. Garcia HH. Neurocysticercosis. New England Journal of Medicine,2016:354(2):122–134.
9. Garcia HH, Nash TE, Del Brutto OH. Clinical symptoms, diagnosis, and treatment of neurocysticercosis. The Lancet Neurology,2014:13(12):1202–1215.
10. Herdman SJ. Vestibular rehabilitation. Philadelphia: F.A. Davis Company, 2014.
11. Khan F, Amatya B. Rehabilitation interventions in neurological conditions. NeuroRehabilitation,2017:41(1):27–37.
12. Kleim JA, Jones TA. Principles of experience-dependent neural plasticity. Journal of Speech, Language, and Hearing Research,2008:51:S225–S239.
13. Krakauer JW, *et al*. Motor learning and neuroplasticity. Neuron,2017:96(3):727–741.
14. Law LLF, *et al*. Effectiveness of balance training in older adults. BMC Geriatrics,2014:14.
15. Lin Y, Lee H. Falls and balance disorders in older adults. Age and Ageing,2015:44(5):829–835.
16. Ndimubanzi PC, *et al*. A systematic review of the frequency of neurocysticercosis. PLoS Neglected Tropical Diseases,2010:4(11):e870.
17. Prasad K, *et al*. Antiepileptic drugs for neurocysticercosis. Cochrane Database of Systematic Reviews, 2008, 4.
18. Rajshekhar V. Surgical management of neurocysticercosis. Neurology India,2004:52(2):118–125.
19. Rubenstein LZ. Falls in older people: epidemiology, risk factors and strategies for prevention. Clinics in Geriatric Medicine,2006:22(2):357–381.
20. Shumway-Cook A, Woollacott M. Motor control: translating research into clinical practice. Philadelphia: Lippincott Williams and Wilkins, 2016.
21. Singh G, Burneo JG. Neurocysticercosis and epilepsy. Epilepsia,2013:54(12):2185–2194.
22. Sorvillo FJ, *et al*. Neurocysticercosis in the United States. Emerging Infectious Diseases,2007:13(6):840–843.
23. Tyson SF, *et al*. Balance training after stroke. Clinical Rehabilitation,2006:20(10):856–866.
24. Wallin MT, Kurtzke JF. Global prevalence of neurological disorders. Neurology,2012:79(12):1236–1244.
25. White AC. Neurocysticercosis: imaging and clinical findings. Radiology,2018:286(3):1087–1110.
26. World Health Organization. Taenia solium taeniasis/cysticercosis. Geneva: World Health Organization, 2022.