

A Comprehensive Case Report on Alzheimer's Disease: Clinical Presentation, Diagnostic Evaluation, and Long-Term Management

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Case Report

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and cognition such as the hippocampus and cerebral cortex.

The clinical course of Alzheimer's disease is typically insidious, beginning with mild cognitive impairment that gradually progresses to severe dementia. Early symptoms often include forgetfulness, difficulty in recalling recent events, and subtle changes in personality. As the disease advances, patients experience impairment in language, executive function, and the ability to perform activities of daily living. Behavioral and psychological symptoms such as agitation, depression, and hallucinations are also common in later stages.

Given the increasing aging population worldwide, Alzheimer's disease poses a significant public health challenge. Early recognition and appropriate management are essential to slow disease progression, optimize patient care, and reduce caregiver burden.

Case Presentation

Patient Information

A 74-year-old female was brought to the neurology clinic by her daughter with complaints of progressive memory loss over the past three years. The patient frequently forgot recent conversations, misplaced personal belongings, and repeated questions. She also had difficulty recognizing acquaintances and occasionally became disoriented in familiar surroundings.

ABSTRACT

Alzheimer's disease (AD) is a progressive neurodegenerative disorder and the most common cause of dementia among elderly individuals. It is characterized by gradual decline in cognitive function, memory impairment, and behavioral disturbances that significantly affect daily living. This case report describes a 74-year-old female presenting with a three-year history of progressive memory loss and cognitive deterioration. Detailed clinical evaluation, neuropsychological testing, and neuroimaging confirmed the diagnosis of moderate Alzheimer's disease. The patient was managed with pharmacological therapy, cognitive rehabilitation, and caregiver support. Despite intervention, gradual disease progression was observed over time. This report highlights the importance of early diagnosis, comprehensive management, and long-term planning in Alzheimer's disease. It also emphasizes the role of caregivers and multidisciplinary approaches in improving patient outcomes and quality of life.

Keywords

Alzheimer's disease, dementia, cognitive decline, neurodegeneration, memory impairment, case report

INTRODUCTION

Alzheimer's disease is a chronic, progressive neurodegenerative disorder that primarily affects older adults and represents the leading cause of dementia worldwide. The disease is associated with characteristic pathological features, including extracellular deposition of beta-amyloid plaques and intracellular accumulation of neurofibrillary tangles composed of hyperphosphorylated tau protein. These pathological changes lead to synaptic dysfunction, neuronal loss, and progressive brain atrophy, particularly in regions associated with memory

Medical and Family History

The patient had a history of hypertension controlled with medication. There was no history of diabetes, stroke, head injury, or psychiatric illness. No family history of dementia or neurodegenerative disorders was reported.

Clinical Findings

On general examination, the patient was cooperative but appeared confused. Neurological examination revealed:

Impaired short-term memory

Difficulty in word-finding and naming objects

Reduced attention and concentration

Disorientation to time and partially to place

Impaired judgment and problem-solving ability

Behavioral assessment revealed mild irritability and occasional mood swings. There were no significant motor abnormalities.

Diagnostic Assessment

Cognitive Testing

Mini-Mental State Examination (MMSE): 17/30

Montreal Cognitive Assessment (MoCA): 15/30

These findings indicated moderate cognitive impairment.

Laboratory Investigations

Routine blood investigations, including thyroid function tests, vitamin B12 levels, liver and renal function tests, were within normal limits, excluding reversible causes of dementia.

Neuroimaging

Magnetic Resonance Imaging (MRI) of the brain revealed:

Significant hippocampal atrophy

Generalized cortical thinning

Ventricular enlargement

These findings were consistent with Alzheimer's disease.

Treatment and Management

Pharmacological Therapy

The patient was initiated on:

Donepezil (5 mg daily, later increased to 10 mg)

Memantine was added during follow-up

These medications aim to enhance cholinergic transmission and regulate glutamate activity, thereby improving cognitive function.

Non-Pharmacological Interventions

Cognitive stimulation therapy

Structured daily routines

Use of memory aids such as calendars and reminder notes

Environmental modifications to reduce confusion and improve safety

Caregiver Support

Family members were educated about disease progression, behavioral management, and safety measures. Psychological support was provided to address caregiver stress and emotional burden.

Follow-Up and Outcomes

Over an 18-month follow-up period, the patient demonstrated gradual cognitive decline. She became increasingly dependent on caregivers for daily activities such as dressing, bathing, and feeding. Behavioral symptoms such as agitation, sleep disturbances, and occasional hallucinations developed in later stages.

Despite pharmacological and supportive interventions, disease progression continued, reflecting the irreversible nature of Alzheimer's disease.

DISCUSSION

Alzheimer's disease is a progressive condition with no definitive cure. The clinical presentation in this case is consistent with typical moderate-stage Alzheimer's disease. Early diagnosis allows for timely intervention, which may help delay progression and improve quality of life.

Pharmacological treatments, including cholinesterase inhibitors and NMDA receptor antagonists, provide symptomatic relief but do not halt disease progression. Non-pharmacological strategies and caregiver support are essential components of management.

The burden of Alzheimer's disease extends beyond the patient, significantly affecting caregivers and families. Therefore, a multi-disciplinary approach involving neurologists, psychologists, and social workers is crucial.

CONCLUSION

This case report highlights the progressive nature of Alzheimer's disease and the challenges associated with its management. Early diagnosis, appropriate treatment, and comprehensive care strategies are essential to improve patient outcomes and quality of life. Continued research is needed to develop more effective therapies for this debilitating condition.

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