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When to Consider Idiopathic Normal Pressure Hydrocephalus in the Older Urgent Care Patient

Urgent Message: The features of idiopathic normal pressure hydrocephalus are easily attributed to normal aging, so the diagnosis is frequently missed. Clinicians should know when to suspect the syndrome, how to evaluate for it, and how to refer to a specialist for diagnosis confirmation and management.

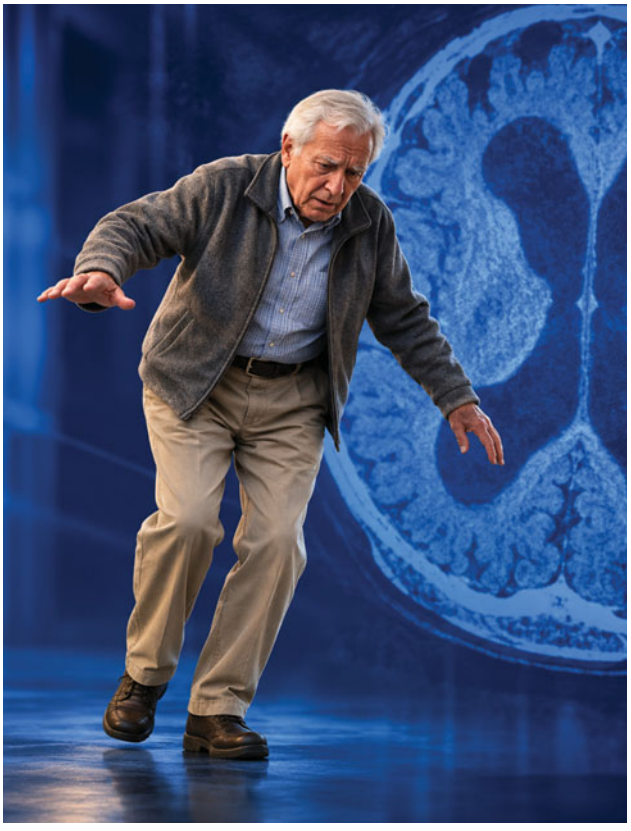
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Abstract

Idiopathic normal pressure hydrocephalus (iNPH) is one of the few reversible causes of dementia and gait decline in older adults, yet fewer than 20% of those affected are correctly diagnosed. Its cardinal features—gait disturbance, urinary incontinence, and cognitive slowing—are common, individually nonspecific, and easily attributed to normal aging. Thus, a diagnosis of iNPH is frequently missed. Because older adults so often present to urgent care with falls, unsteadiness, urinary symptoms, and confusion, clinicians are encouraged to recognize the constellation of iNPH symptoms and initiate evaluation. This article describes when to consider iNPH, how to take a focused history, how to perform a brief structured gait examination, when and how to use neuroimaging, and how to construct a referral that moves the patient efficiently toward specialist evaluation, diagnosis, and treatment.



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Introduction

Idiopathic normal pressure hydrocephalus (iNPH) is 1 of the few reversible causes of dementia in older adults. First described by Hakim and Adams in 1965,[1] it classically presents with a triad of gait disturbance, urinary incontinence, and cognitive decline, accompanied by ventriculomegaly on neuroimaging despite normal cerebrospinal fluid (CSF) opening pressure. Unlike neurodegenerative dementias such as Alzheimer disease, iNPH arises from a mechanical and hydrodynamic process—impaired CSF absorption and altered intracranial compliance.[2-3] Left untreated, patients experience progressive disability, dementia, and shortened survival.[4-5] CSF diversion by shunting improves outcomes in appropriately selected patients, with benefits most evident in gait and balance and secondary gains in urinary continence, cognition, and functional independence.[6-9] Early recognition can facilitate timely specialist evaluation and treatment; earlier shunt surgery has been associated with improved survival.[10]

The difficulty is not that iNPH is rare but that its features are common. Falls, unsteadiness, urinary incontinence, urinary urgency, and cognitive slowing are individually familiar and readily attributed to aging or to a comorbid condition. When each complaint is explained away on its own, the treatable syndrome that unites them is never considered—a pattern of premature closure that accounts for much diagnostic error.[11-13] Older adults increasingly seek care in urgent care settings,[14] where presentations with these complaints may be routine. This article describes when to suspect iNPH in the older patient, how to clinically evaluate it, and how to refer to a specialist.

Epidemiology

The Hydrocephalus Association estimates that iNPH affects approximately 700,000 Americans, yet fewer than 20% receive a correct diagnosis and treatment.[15] Population-based studies indicate that 2–5% of adults over age 65 harbor undiagnosed iNPH,[16] and community magnetic resonance imaging (MRI) studies suggest that the prevalence of the radiologic–clinical phenotype rises steeply with age.[17] The gap between how many people have the condition and how few are treated represents 1 of the largest opportunities to address potentially reversible disability in geriatric care.[18] The underrecognition is not chiefly a knowledge problem. The individual symptoms are well known, but their significance as a single treatable syndrome may be missed.

History

The clinical hallmark of iNPH is its triad—gait disturbance, urinary incontinence, and cognitive slowing—though the 3 seldom appear together at onset. Gait disturbance is the earliest, most prevalent, and most treatment-responsive feature, frequently preceding urinary and cognitive symptoms by months to years.[19-20] Clinicians may consider iNPH in any patient aged 65 years or older who presents with 1 or more of the following complaints: recurrent falls or near-falls; new or progressive gait unsteadiness; recent-onset urinary urgency or incontinence; cognitive complaints, particularly psychomotor slowing rather than prominent memory loss; or unexplained functional decline.[21] The most useful red flag is the patient whose chief complaint could be dismissed as aging but who, on directed ques-

Table 1. Urgent Care iNPH Screening Quick Reference

Who to Consider	Adults ≥65 with falls, gait change, confusion, new urinary incontinence, or functional decline
Gait Assessment	TUG test (>12 seconds abnormal; >20 seconds highly suggestive); 10MWT (<0.6 m/s abnormal); smartphone app; or video recording of walking
Key Gait Features	"Magnetic" gait: wide base, short shuffling steps, reduced foot clearance, difficulty initiating movement, multistep turning
History Red Flags	Progressive gait worsening; recurrent falls; urinary urgency/incontinence (recent onset); cognitive slowing; symptoms not explained by known conditions
Neuroimaging	Head CT (if obtainable): Evans Index >0.3 suggests ventriculomegaly; DESH pattern on MRI if available
Referral Trigger	Abnormal gait + ≥1 additional feature (cognitive, urinary), OR abnormal gait + ventriculomegaly on imaging
Referral Provider	Neurology (preferred initial referral) or neurosurgery; include gait video, quantitative parameters, symptom timeline
Considerations For ED Transfer	Acute neurologic changes, new-onset seizures, signs of elevated ICP, acute fall with significant injury

iNPH = idiopathic normal pressure hydrocephalus; TUG = Timed Up and Go; 10MWT = 10-Meter Walk Test; m/s = meters per second; CT = computed tomography; MRI = magnetic resonance imaging; DESH = disproportionately enlarged subarachnoid-space hydrocephalus; ICP = intracranial pressure; ED = emergency department.

tioning, reports 1 or more additional triad features **(Table 1)**.

A focused history clarifies the picture: the duration and progression of gait difficulty; the frequency, circumstances, and injuries of any falls; urinary symptoms, distinguishing iNPH-type urgency and incontinence from stress incontinence or prostatic disease; cognitive changes reported by the patient or family, emphasizing slowing over amnesia; and a medication review to exclude drugs that impair gait or cognition.

Two thresholds should be kept distinct. The threshold for urgent care *screening* is low. A concerning gait pattern in an older adult—with or without the other triad features—warrants a structured gait assessment. Referral is indicated when an abnormal gait is accompanied by at least 1 other triad feature or by ventriculomegaly on new or existing imaging. Formal *diagnostic* classification is a specialist task. Current criteria grade iNPH as possible or probable according to which triad elements are present, whether ventriculomegaly is confirmed, and whether another condition explains the findings,[22–24] and gait disturbance alone can satisfy the "possible" category. The urgent care clinician's job is to recognize the candidate, not to assign the label.

Physical Exam

The examination centers on gait. The characteristic pattern—often called "magnetic"—features short, shuffling steps, a widened base, reduced foot clearance as though the feet were glued to the floor, difficulty initiating movement, and turns completed through multiple small steps rather than a smooth pivot.[25] These features can be appreciated within seconds of direct observation. Several brief, low-cost tools can help quantify the impression:

- **Timed Up and Go (TUG).** The patient rises from a chair, walks 3 meters, turns, returns to the chair, and sits. A time over 12 seconds suggests impairment; patients with iNPH frequently exceed 20 seconds.[26-27] Demonstration videos are available from the Centers for Disease Control and Prevention (CDC) STEADI initiative[28] and the American Medical Association.[29]
- **Gait speed.** Timed over the middle 6 meters of a 10-meter walk at normal pace, velocity below 0.6 meters/second (m/s) indicates clear gait impairment in community-dwelling older adults.[30-31] A less stringent threshold near 0.8 m/s is not itself diagnostic of a gait disorder but identifies slower walkers at elevated risk of functional decline and shortened survival.[32] So the 2 cutoffs answer different questions: 0.6 m/s flags an abnormal gait worth evaluating; while 0.8 m/s stratifies prognosis.
- **Smartphone gait analysis.** Validated applications are available to compute gait velocity, stride length, and cadence from the phone's accelerometer with clinical-grade accuracy.[33-36]

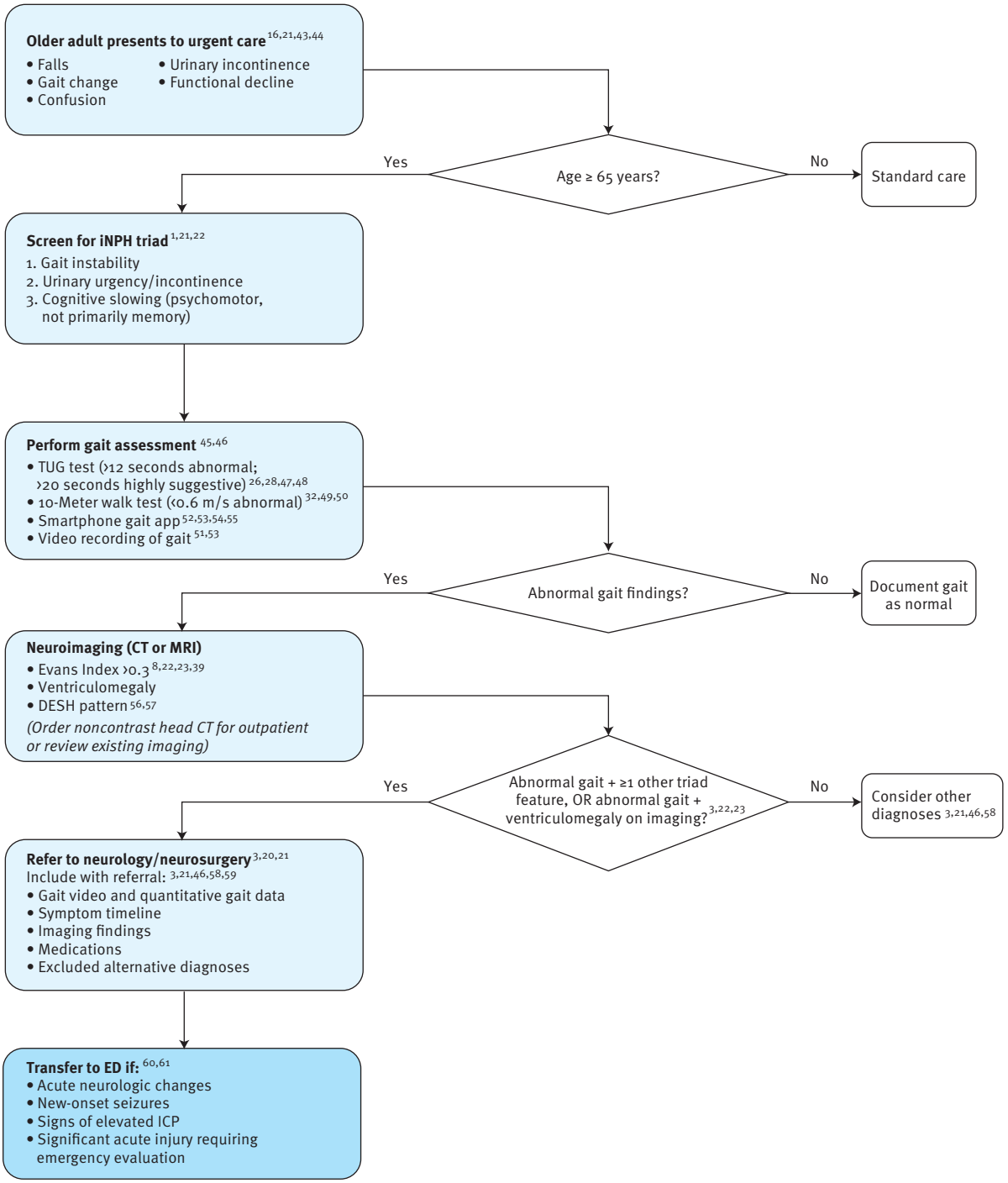
When quantitative tools are unavailable, observational gait analysis has value, and a brief smartphone video can capture the abnormality more faithfully than any written description while providing documentation a specialist can review.[25,33] Structured gait assessment also has value well beyond iNPH, contributing to fall-risk stratification, neurologic evaluation, and disposition decisions across a range of urgent care presentations.[37]

Evaluation and Diagnosis

One supportive investigation is neuroimaging, indicated once the history and gait examination raise suspicion of iNPH.[23] A noncontrast head computed tomography (CT) scan is widely accessible and reliably demonstrates the key finding: ventriculomegaly out of proportion to cortical atrophy. It is quantified by the Evans Index, the ratio of maximal frontal-horn width to maximal internal skull diameter, with values >0.3 indicating significant ventricular enlargement.[38] In older adults, that threshold is nonspecific as nearly one-third of healthy elderly exceed it.[39] As such, imaging supports rather than confirms the diagnosis, and CT findings must be interpreted alongside the clinical picture. MRI, which better characterizes the disproportionately enlarged subarachnoid-space hydrocephalus (DESH) pattern and excludes mimics, is generally obtained during specialist evaluation rather than at the urgent care visit.

Imaging may be warranted when a patient aged 65 years or older shows an abnormal gait, whether or not other triad features are present. Referral is indicated when an abnormal gait is accompanied by at least 1 other triad feature or when ventriculomegaly is found on imaging. Imaging need not precede referral, but when readily available, ordering a noncontrast head CT through outpatient channels accelerates the downstream assessment. In some cases, relevant imaging may already exist—obtained during a prior fall or headache evaluation. Reviewing those reports for mention of ventriculomegaly, hydrocephalus, or ventricular enlargement out of proportion to atrophy, and correlating such findings with the clinical picture, should prompt patient referral rather than dismissal of the complaint as an age-related change.

Figure 1. Urgent Care iNPH Screening Pathway



The pathway begins with the key presenting symptoms, followed by a brief gait assessment. If gait is abnormal, clinicians should order a noncontrast head CT or review existing head CT or MRI for ventriculomegaly (Evans Index >0.3) or a DESH pattern. Referral is indicated when the abnormal gait is accompanied by at least one other triad feature or by ventriculomegaly on imaging; transfer to the ED is indicated for acute neurologic change, new-onset seizures, signs of elevated ICP, or significant acute injury. iNPH = idiopathic normal pressure hydrocephalus; m/s = meters per second; TUG = Timed Up and Go; DESH = disproportionately enlarged subarachnoid-space hydrocephalus; ICP = intracranial pressure; ED = emergency department; CT = computed tomography; MRI = magnetic resonance imaging.

Management

The urgent care role in iNPH is to recognize the syndrome, document it, and refer—not to establish the definitive diagnosis or provide treatment. What makes timely referral worthwhile is the strength of the outcomes. Systematic reviews find that approximately 75% of appropriately selected patients improve meaningfully after shunt surgery.[19,40] A recent randomized trial supports gait-velocity gains beyond the threshold for functional benefit.[41] Delay also carries a survival cost. In a Swedish single-center cohort in which shunt surgery was postponed 6–24 months for administrative reasons, 4-year mortality was 39% among delayed patients vs 10% among those treated within 3 months (adjusted hazard ratio 2.6), an association that persisted after adjustment for confounders.[10]

An effective referral is specific. It should include:

- Quantified gait data (TUG time, gait speed) or a short video
- Symptom timeline with onset and progression
- Any neuroimaging findings, with the Evans Index if measurable
- Contributing medications
- Alternative diagnoses already considered and excluded

A neurologist is usually the appropriate initial referral, though a neurosurgeon may be preferred in some settings.[23] Structured, data-rich referrals are more readily accepted than vague consultation requests,[42] and they shorten the path to confirmatory steps performed during specialist workup.[4]

The message to the patient can be simple and honest: their walking pattern and associated symptoms may point to a condition—normal pressure hydrocephalus—that is sometimes treatable, and evaluation by a neurologist is the next step. The visit has identified a possibility worth pursuing, not a confirmed diagnosis.

Figure 1 summarizes the full recognition-to-referral pathway, including when to bypass outpatient referral for immediate transfer to the emergency department due to acute neurologic change, new-onset seizures, signs of elevated intracranial pressure, or a significant acute injury.

Takeaway Points

- When an older adult presents to urgent care with falls, unsteadiness, urinary incontinence, or confusion, the reflex to attribute each complaint to aging is precisely what causes clinicians to miss a potential iNPH diagnosis.
- Keeping the syndrome on the differential and spending the few minutes required for a structured gait assessment can be valuable.
- When an abnormal gait is paired with another triad feature or with ventriculomegaly on imaging, urgent care clinicians can redirect a patient toward specialized assessment and treatment that restores independence. ■

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