Missed Opportunities to Diagnose and Intervene in Modifiable Risk Factors for Older Emergency Department Patients Presenting After a Fall

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Study objective: Falls are a major cause of mortality and morbidity in adults aged 65 years and older and a common chief complaint in the emergency department (ED). However, the rate of missed opportunities to diagnose and intervene in modifiable fall-risk factors in the ED is unknown. We hypothesize that although ED providers (defined as ED attendings, residents, and advanced care providers) excel at assessing and ruling out injury, they miss the opportunity to identify a large portion of the modifiable risk factors that contribute to a patient's fall. Our objective is to quantify the number of missed opportunities to identify and reduce fall-risk factors in older adult ED patients presenting after a fall.

Methods: This secondary analysis used data from a prospective cohort study of older patients at a single academic urban ED. The original study investigated the standard ED evaluation after a fall in older adults. All patients in the original study had a falls evaluation conducted at their ED visit by trained research assistants; this served as the standard fall evaluation. We reviewed the charts of study patients and identified modifiable fall-risk factors. We then determined the number of missed opportunities to intervene in these risk factors during the ED encounter; the primary outcome was the percentage of missed opportunities to identify risk factors in older ED patients who fell.

Results: We found that of the 400 patient charts reviewed, 349 patients had a modifiable risk factor for falling. Of those patients with known modifiable risk factors, the ED team missed identifying the factors in 335 patients (96%). The most commonly missed fall-risk factors were visual acuity (147/154; 96%) and the use of high-risk medications (245/259;95%). Gait abnormalities had the lowest rates of missed modifiable risk factors, at 56% of patients (109/196). When a modifiable risk factor was identified and intervened in, it was most commonly done in the ED observation unit by a physician or physical therapist, and often consisted of an outpatient referral or primary care physician follow-up.

Conclusion: Providers frequently fail to identify and intervene in modifiable fall-risk factors in older adult patients presenting to the ED after a fall; this is a missed opportunity. Addressing the risk factors that contributed to the fall during a fall-related ED visit may minimize fall risk and promote safer mobility. [Ann Emerg Med. 2020;76:730-738.]

Please see page 731 for the Editor's Capsule Summary of this article.

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INTRODUCTION

Background

Falls are a major cause of mortality and morbidity in adults aged 65 years and older and a common chief complaint in the emergency department (ED).[1,2] Age-adjusted mortality from falls is increasing and mortality rates increase with age.[3] Most hip fractures are the result of a fall and falls are the most common cause of traumatic brain injuries in older patients.[4,5] One in every 3 community-dwelling older persons falls each year, with a wide range of influence, from minimal to fatal.[6-10] Additionally, a history of falls is a predictive risk factor for a recurrent fall, and a patient who has fallen is twice as likely to fall again.[8,9]

Importance

EDs across the United States treat 2.8 million older persons who present with fall injuries annually, at an estimated cost of $31 billion.[11,12] More than 70% of these patients are discharged after their ED visit.[13] Many of these discharged older patients experience an adverse event such as a repeated visit, hospital admission, nursing home admission, or death after their initial fall.[2,12-14] Although ED visits for falls are common, it is unknown how often providers miss opportunities to diagnose and intervene in modifiable fall-risk factors in the ED. One study identified that 35% of older adults who fell were discharged from the ED with unrecognized but modifiable fall-risk factors.[15]

Editor's Capsule Summary

What is already known on this topic

Older adult falls cause significant injury-related morbidity and mortality. Emergency department (ED) patients seeking treatment for falls are twice as likely to sustain another fall.

What question this study addressed

This study compared ED chart review data with standardized research assistant–conducted Stopping Elderly Accidents, Death, and Injuries assessments to identify missed opportunities for diagnosing modifiable fall-risk factors.

What this study adds to our knowledge

In 96% of cases (335/349) in which one or more modifiable risk factors were present, they were not diagnosed. The most commonly missed risk factors were high-risk medications and visual acuity deficits.

How this is relevant to clinical practice

Results demonstrate additional opportunities for emergency physicians to identify and address modifiable risk factors in older adult patients with falls to mitigate their future fall and injury risk.

However, the authors were unable to quantify the extent of the missed opportunities to address these fall-risk factors, given that a comprehensive fall evaluation was not conducted. Furthermore, documentation on the evaluation and work of these patients was lacking.[15]

Goals of This Investigation

Our objective was to quantify the number of missed opportunities to identify modifiable fall-risk factors. We hypothesized that modifiable risk factors for falls among patients presenting with a chief complaint of a fall are frequently missed by providers during the ED encounter. The goal of this work is to improve care for older ED patients presenting with falls by reducing their fall risk at ED presentation.

MATERIALS AND METHODS

Study Design

This study was a secondary analysis of data from a prospective multicenter study that investigated the standard ED evaluation for falls among older adults.[16] We extracted the 400 charts from the US institution for this analysis. We focused on the US site from that study because those data were in English and available in electronic medical records, making it easier to review the same 400 charts. The US site is an academic, urban, Level I trauma ED with more than 100,000 annual ED visits. Data were extracted with a standard form and managed with Research Electronic Data Capture (The Harvard Clinical and Translational Science Center, Boston, MA). The hospital institutional review board approved the study.

Selection of Participants

Patients in the original study from the US site were eligible if they were aged 65 years or older, lived independently, and presented to the ED for a fall between May 1, 2014, and May 29, 2015, on Monday through Friday from 7 AM to 11 PM. Patients who presented a second time within the study period, presented with severe illness, or were unable to consent were excluded. All participants had a falls evaluation conducted by dedicated and trained research assistants. The research assistants were trained by the principal investigator (S.L.), an ED attending physician, and by a licensed physical therapist. The research assistants asked the ED providers, which included the registered nurse, physician assistant, physician (resident and attending physician), or nurse practitioner, for permission to conduct the falls assessment before enrolling the patient.

On chart review, we extracted modifiable fall-risk factors that were not identified or intervened in during the patient's ED encounter. All ED provider notes were reviewed, including notes from both the ED care team and the observation team. At this institution, the observation unit was managed by ED attending physicians and nurse practitioners on 2 floors of the hospital physically separate from the main ED. Consultants' note, which included any subspecialty outside the ED, were also reviewed. Physical therapy and occupational therapy notes were also included and were considered part of the observation unit's care team.

Interventions, Methods of Measurement, and Primary Data Analysis

The original study collected basic demographic data such as age, race, marital status, history of fall in the last year, and specific fall-relevant comorbidities in accordance with the Geriatric Emergency Department Guidelines.[17] The research assistant falls assessment included a 12-question fall-prevention clinical screening tool from the Centers for Disease Control and Prevention's Stopping Elderly Accidents, Death, and Injuries tool kit.[11]

Additionally, the research assistant assessment determined whether the patient had impaired vision by testing visual acuity and noting whether it was less than 20/40, if it had been greater than 1 year since the patient's last eye examination, or both. As part of the fall evaluation, the research assistant measured orthostatic vital signs, defined as the measurement of blood pressure and pulse rate in both supine and standing positions. The research assistant also performed a gait evaluation with the Timed Up and Go test[17,18]; assessed strength in terms of arm abduction, adduction, elbow flexion, extension, hip flexion and extension, and knee flexion and extension; and tested peripheral neuropathy. Finally, the research assistant reconciled the patient's home medication list and identified high-risk medications that may increase the risk of falling according to the 2015 Beers criteria,[19] a list of medications that are potentially harmful in older patients. The list serves as a guideline for health care professionals to encourage safe prescribing and includes medication classes such as antidepressants, antipsychotics, anticonvulsants, benzodiazepines antihistamines, opiates or other prescription pain medications, sleep aids, and blood thinners. This research assistant fall assessment served as the standard fall evaluation against which the ED evaluation was compared for the chart review.

The chart review was performed by a trained research assistant (M.A.), a medical student interested in emergency medicine, and coinvestigator (K.D., specialist in geriatric emergency medicine and ED attending physician) after 6 hours of training on how to examine and conduct a chart review.[20] K.D. and M.A. conducted the chart review for the first 10 charts after training with the principal investigator, who has experience with chart review projects. Before conduct of the chart review, an explicit protocol with definitions of the fall evaluation and criteria for chart analysis was created in Research Electronic Data Capture and tested.[21] Variables were tested and refined iteratively to improve accuracy of the chart review. K.D. and M.A. met at least once weekly to address ambiguous or missing data and resolve disputes. The charts were reviewed through the patient's electronic medical record. To ensure interreviewer reliability, 20 charts were chosen at random and were reviewed independently by K.D. and M.A. The charts were examined specifically to determine whether both reviewers agreed that a fall assessment was completed by the ED team. The interrater reliability score (Cohen's κ coefficient) was 0.737 (95% confidence interval [CI] 0.403 to 1.000), indicating substantial agreement between observers.

Charts were reviewed to determine whether a fall evaluation was conducted by the ED providers. A fall evaluation/assessment included any of the following: testing visual acuity or asking the patient about recent eye examinations, measuring orthostatic vital signs, performing a gait evaluation (either gross or detailed), testing strength (either gross or detailed), identifying high-risk medications, and testing peripheral neuropathy. A missed opportunity was defined as the ED or observation care team's not identifying a modifiable risk factor that had been identified on the research assistant's fall assessment. Risk factors were defined as modifiable if an intervention could be made to decrease the likelihood of a recurrent fall. Gait and strength testing were further categorized as gross or detailed, depending on the extent of documentation. A gross evaluation of gait was noted when the provider stated gait intact rather than describing the gait. A detailed gait examination included the gait description such as normal, shuffling, ataxic, or steady to ensure the provider had tested it. A gross strength examination was noted when the chart stated that motor function was intact or that all extremity strength was normal. Detailed strength testing was described as evaluating individual muscle groups in the upper and lower extremities on a scale of 0 of 5 to 5 of 5. Both gross and detailed strength and gait testing was counted as assessed. A sensitivity analysis was conducted to determine the difference in number of assessments if only detailed examinations were considered. High-risk medications had to be identified by the ED care team in the documentation to be counted as "identifying high-risk medications." For example, providers needed to make a specific comment about a medication's potentially contributing to the patient's fall or providing recommendations to reduce or stop the medication at discharge. Peripheral neuropathy was considered tested if the chart stated that sensation was intact in either foot or great toe, or when dermatomes were tested. A fall evaluation was considered to have been conducted if any of the above risk factors were assessed. If a risk factor was tested, we determined who on the care team performed the assessment (ie, the physician assistant, physician, registered nurse, physical therapist, occupational therapist, nurse practitioner, or consultant) and noted whether the results were normal or abnormal. If abnormal, we documented what intervention, if any, was completed.

If a risk factor was identified, we then determined whether ED providers intervened in it. For example, if visual acuity was abnormal, then an appropriate intervention included providing patient education or instructions to follow up with a primary care provider, ophthalmologist, or other eye physician. Interventions had to be noted in the chart or in the patient's discharge instructions. If the gait was noted to be abnormal, then

appropriate interventions included a referral to physical therapy, transfer to a short-term rehabilitation unit, recommendation for walking aids (including but not limited to a walker, cane, rolling walker, or crutches), or a referral to a primary care physician. Strength interventions were defined as an occupational therapy or physical therapy referral, PCP referral, or a prescription for exercise strength training. Intervention for abnormal orthostatic vital signs included administration of intravenous fluids, patient education regarding getting up slowly when changing positions, suggestions for medication changes, or a PCP referral. High-risk medication interventions included a PCP referral for medication reconciliation, instructions to change or stop a medication, or patient education on the risks involved in receiving the specific medication. Peripheral neuropathy interventions were defined as making a referral to the patient's PCP or other specialist, or providing patient education on how decreased sensation can contribute to falls.

Outcome Measures

The primary outcome was the percentage of missed opportunities to identify modifiable fall-risk factors (the number of fall-risk factors identified by the ED care team relative to the number identified by the research assistant) for older ED patients presenting after a fall.

RESULTS

Characteristics of Study Subjects

There were 400 patients included in the initial study at the US site. Fifty-one patients had no modifiable fall-risk factors identified by the research assistant. Of the remaining 349 patients with modifiable risk factors, the ED and observation team missed the opportunity to identify these risk factors in 335 patients, or 96% of the time.

The 335 patients with missed risk factors as outlined in Table 1 were aged 65 years or older and primarily white (92%), women (60%), and single (53%). Many patients had fallen at least once (43%) or more than once (56%) before this ED visit. Only one patient who was found to have a modifiable fall-risk factor had never fallen previously. The most common comorbidity was diabetes and the most common high-risk medication group was oral antihyperglycemics. Other common high-risk medications included antiplatelet agents (35%) and anticoagulants (13%).

Main Results

Table 2 shows the missed opportunities to diagnose fall-risk factors, using current ED practice at the US study site compared with the research assistant standard fall evaluation defined earlier. The risk factors most frequently missed were visual acuity (147/154, or 96%; 95% CI 90.8% to 98.1%) and high-risk medications (245/259, or 95%; 95% CI 91.1% to 97.0%). The ED and observation team were best at identifying gait abnormalities but did not identify them in 56% of patients (109/196; 95% CI 48.9% to 63.1%) with this risk factor. Orthostatic hypotension was not identified in 75% of the patients with the risk factor (15/20; 95% CI 50.9 to 91.3). Furthermore, abnormal strength was missed in 37% of patients with this risk factor (39/105; 95% CI 27.9 to 47.1). In sensitivity analyses, when we limited assessments to detailed gait and strength examinations, an increase in missed abnormalities occurred (70% [95% CI 63.4% to 76.4%] among abnormal gait and 55% [95% CI 45.6% to 64.9%] among abnormal strength).

When risk factors were identified, they were most often found by physical therapy or consulting services and often in the observation unit. For example, gait was assessed most commonly in the observation unit (83%; 72/87) by physical therapists (71%; 62/87) and high-risk medication use was identified in the observation unit (93%; 13/14). Consultant services identified 71% of patients (5/7) with abnormal visual acuity in the ED rather than observation setting (57%; 4/7). All of the orthostatic hypotension testing (100%; 5/5) was conducted by the observation team.

When patients had risk factors that were identified by the ED and observation care team, most of these patients had interventions. (table 3) For visual acuity, 85% of patients identified (6/7) had an intervention. Similarly, 60% of patients (3/5) with an abnormal orthostatic vital sign, 85% (74/87) with abnormal gait, 80% (53/66) with abnormal strength, and 93% (13/14) with high-risk medications had an intervention by the ED or observation team. The exception was peripheral neuropathy, in which none of the 10 patients with abnormal peripheral neuropathy had an intervention. The specific interventions for the risk factors identified varied and included administration of intravenous fluids for abnormal orthostatic vital signs (2/3; 67%), provision of walking aids for patients with abnormal gait (53/74; 72%), and referrals to physical therapy for abnormal gait (33/74; 45%) and abnormal strength (27/53; 51%). Patients with abnormal vision were most commonly referred to an eye physician (5/6; 83%). Patients with high-risk medications identified were instructed to stop or modify the medication (9/13; 69%).

Table 1. Demographic data of patients with modifiable fall-risk factors, n=335.

	Patients With RFs Not Identified in the ED		Patients With RFs Identified on Standard Examination	
Variables	**No.**	**% (95% CI)**	**No.**	**% (95% CI)**
Age, median (IQR), y	335	76 (70–83)	349	76 (70–83)
Sex				
Women	202	60.3	208	59.6
Men	133	39.7	141	40.4
Race				
White	309	92.2	323	92.5
Black	14	4.2	14	4
Hispanic	6	1.8	6	1.7
Asian	4	1.2	4	1.3
Other	2	0.6	2	0.6
Marital status				
Married	60	17.9	62	17.8
Single	176	52.5	185	53
Divorced	36	10.8	37	10.6
Widowed	63	18.8	65	18.6
History of fall in past year				
None	1	0.3	1	0.3
1	145	43.3	149	42.9
>1	187	55.8	197	56.4
Not recorded/unknown	2	0.6	2	0.9
Comorbidities				
Myocardial infarction	14	4.2	15	4.3
Congestive heart failure	41	12.2	44	12.6
Peripheral vascular disease	7	2.1	7	2
Cerebrovascular disease	37	11	38	10.9
Dementia	3	0.9	3	0.9
Connective tissue disease	9	2.7	10	2.9
Chronic lung disease	55	16.4	59	16.9
Ulcer	5	1.5	5	1.4
Chronic liver disease	6	1.8	6	1.7
Diabetes	72	21.5	77	22.1
High-risk medication used				
Psychotropic/antidepressant	36	10.8	38	10.9
Benzodiazepine	44	13.1	45	12.9
Diabetic medication (oral)	26	7.8	27	7.7
Antiplatelet	118	35.3	125	35.8
Antiepileptic/anticonvulsant	22	6.6	25	7.2
Anticoagulant	45	13.4	49	14

RF, Risk factor; *IQR*, interquartile range.

LIMITATIONS

There were several limitations with this study. First, it was conducted at a single urban academic center and tertiary referral center. This limits its generalizability but provides insight into the current ED practice at that institution. Additionally, the original study recruited patients according to chief complaint, and the ED providers thus were aware that patients were being

Table 2. Missed opportunities to diagnose modifiable fall-risk factor.

Variables	RF Identified by Standard Reference Examination,* No.	RF Missed by Standard Reference Examination,† No.	Percentage of Missed Opportunities by Current ED Practice, % (95% CI)
Modifiable fall-risk factors	349	335	96 (93.4–97.8)
Visual acuity	154	147	95.5 (90.8–98.1)
Orthostatic hypotension	20	15	75.0 (50.9–91.3)
Gait testing (gross and detailed)‡	196	109	55.6 (48.9–63.1)
Gait testing (detailed)	196	137	69.9 (63.4–76.4)
Strength assessment (gross and detailed)§	105	39	37.1 (27.9–47.1)
Strength assessment (detailed)	105	58	55.24 (45.6–64.9)
Peripheral neuropathy	92	82	89.1 (80.9–94.6)
High-risk medications	259	245	94.6 (91.1–97.0)

*Standard reference examination defined as risk factors identified by a research assistant using the Centers for Disease Control and Prevention's Stopping Elderly Accidents, Death, and Injuries falls prevention tool kit.
†Current ED practice at one US Level I trauma and tertiary referral center.
‡Twenty-eight gross examinations, 59 detailed ones.
§Nineteen gross examinations, 47 detailed ones.

evaluated for a fall and may have changed their evaluation of that patient. However, we do not think this significantly changed the ED provider's assessment or documentation for fall risk, given that despite this information most patients did not receive a falls evaluation.

Additionally, the chart reviewers were not blinded to the ED provider's name or the patient demographic information, which may have created abstractor bias.[20] There was also no standard ED note or expected documentation for older patients presenting for a fall, thus creating variability between provider charts. Some risk factors may have been identified by the ED or observation care team but not documented. This is a limitation with chart review, but we suspect it is not likely that fall evaluations occurred unless documented. Additionally, we were also unable to adjust for clustering of patients with providers, given that we did not collect data on specific providers because in our US site multiple providers contribute to a patient's care between the ED and his or her observation stay.

DISCUSSION

Our study shows that ED providers are missing the opportunity to identify modifiable risk factors in many older patients presenting after a fall. The reason for this is multifactorial and highlights the challenges of caring for older patients in the ED. One factor may be that providers focus their assessment on identifying injuries rather than investigating the cause of the patient's fall.[15] This emphasis on the outcome rather than the cause may be due to a lack of education about fall prevention and risk mitigation in older patients. This presents an opportunity to improve fall education in both medical schools and residencies. Additionally, it may be due to a lack of a standard fall evaluation and screening in the ED. There is no screening tool that has proven to be most effective.[22] A recent systematic review of ED-based fall-risk stratification instruments was unable to provide a definitive fall-screening strategy.[22] However, it suggested that the ideal ED-based fall-screening assessment tool would be brief and usable by all members of the ED care team, and would not require space or equipment to implement.[22] Our study should provide the impetus for improving provider education on fall prevention and the need to develop an optimal screening tool.

The most commonly missed risk factors by the ED team were visual acuity, orthostatic hypotension, high-risk medications, and peripheral neuropathy. Assessing these risk factors is more time intensive and not part of a routine physical examination. Gait and strength testing were most commonly examined, likely because assessment of these risk factors is part of a standard ED physical examination. These examinations were generally gross assessments, and when we included the sensitivity analysis for the detailed assessment only the percentage of missed risk factors increased. This

Table 3. Modifiable risk factors identified by current ED practice.

RF Evaluated	RF Identified by Standard Reference Examination	RF Identified by an ED Provider, No. (%)*
Visual acuity test	154	7 (4.5)
Location of evaluation, n=7		
ED		4 (57.1)
ED observation unit		3 (42.9)
Evaluator, n=7		
Physician		1 (14.3)
Physical therapist		1 (14.3)
Physician assistant		0
Registered nurse		0
Nurse practitioner		0
Consultant service		5 (71.4)
Occupational therapist		1 (14.3)
Orthostatic hypotension test	20	5 (25.0)
Location of evaluation, n=5		
ED		0
ED observation unit		5 (100)
Evaluator, n=5		
Physician		5 (100)
Physical therapist		5 (100)
Physician assistant		0
Registered nurse		0
Nurse practitioner		0
Consultant service		0
Occupational therapist		0
Gait testing	196	87 (44.4)
Location of evaluation, n=87		
ED		33 (37.9)
ED observation unit		72 (82.8)
Evaluator, n=87		
Physician		16 (18.4)
Physical therapist		62 (71.3)
Physician assistant		5 (5.8)
Registered nurse		62 (71.3)
Nurse practitioner		14 (16.1)
Consultant service		7 (8.1)
Occupational therapist		1 (1.2)
Strength assessment	105	66 (62.9)
Location of evaluation, n=66		
ED		58 (87.9)
ED observation unit		46 (69.7)
Evaluator, n=66		
Physician		33 (50)
Physical therapist		41 (62.1)
Physician assistant		17 (25.8)
Registered nurse		47 (71.2)
Nurse practitioner		51 (77.3)
Consultant service		16 (24.2)
Occupational therapist		1 (1.5)
High-risk medications	259	14 (5.4)
Location of evaluation		
ED		2 (14.3)
ED observation unit		13 (92.9)
Evaluator, n=14		
Physician		5 (35.7)
Physical therapist		0
Physician assistant		1 (7.1)
Registered nurse		0
Nurse practitioner		8 (57.1)
Consultant service		0
Occupational therapist		0
Peripheral neuropathy test	92	10 (10.9)
Location of evaluation, n=10		
ED		4 (40.0)
ED observation unit		7 (70.0)
Evaluator, n=10		
Physician		4 (40.0)
Physical therapist		5 (50.0)
Physician assistant		1 (10.0)
Registered nurse		1 (10.0)
Nurse practitioner		0
Consultant service		0
Occupational therapist		0

*Total will vary by RF and can be identified by multiple providers.

information is important because it provides guidance on how providers can improve their physical examination of older patients who fall. Our results also provide a starting point for examining the barriers to performing ED-based fall-risk assessments. For example, the perceived lengthy nature of the assessments may prevent providers from doing them. Other studies suggest that observation units can provide a reasonable alternative for a comprehensive older patient and fall evaluation rather than its being done in the ED.[23] The results of our study provide the opportunity to develop an older patient falls assessment protocol for use in the ED or observation unit.

When a risk factor was identified in our study, interventions were conducted most of the time. This is encouraging and shows that if more risk factors are consistently identified, more interventions can be implemented to reduce future falls. Evidence on which fall prevention strategies and programs are best is lacking.[2] However, there are some general recommendations and interventions that providers could initiate from the ED to address fall-risk factors. For example, for patients with weakness or decreased strength, advocating physical therapy evaluations in the ED or providing walkers or canes at discharge may decrease fall risk.[17] The US Preventive Services Task Force 2018 fall prevention guidelines recommend that community-dwelling patients older than 65 years enroll in balance and strength exercise training programs to prevent falls.[24] Providers could also offer education to their patients with tips on how to make home safety improvements such as installing handrails on stairs, placing safety grab bars in bathrooms, and improving lighting to prevent home falls.[17] The American Geriatrics Society guidelines for fall prevention and the Geriatric Emergency Department Guidelines support a formal home environment evaluation.[17] The ED care team should be aware of these recommendations and include them in their discharge instructions.

It is essential that we as ED providers improve our risk factor identification and intervention to reduce recurrent falls among older patients. Future research should focus on ED-based screening tools, use of the observation unit, standardization of fall prevention interventions, and improvement of provider and patient education on ways to promote safe mobility.

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DIAGNOSIS:

Lithopedion. Derived from the Greek terminology *lithos,* meaning *stone,* and *paedion,* meaning *child,* a lithopedion occurs as a result of an abdominal pregnancy, or an ectopic pregnancy outside of the uterus, cervix, or fallopian tubes, that calcifies after fetal demise.[1] Abdominal pregnancy is estimated to occur in 1 in 10,000 pregnancies and carries a high risk of fetal and maternal morbidity and mortality.[2] If an abdominal pregnancy remains undetected and fetal demise occurs past 12 to 14 weeks' gestation, the fetus may be too large to be resorbed by the mother and is skeletonized by infiltration of calcium salts, creating a "stone baby."[3] If the tissue remains sterile and uninterrupted, the lithopedion will stay within the peritoneal cavity for the lifespan of the mother. Most lithopedions are found incidentally as a palpable mass on physical examination or radiographic imaging, as was the case with our patient. There are fewer than 400 reported lithopedions ever described in the literature.[3]

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