

# Natural History of Occult Hernias in Adults at a Safety-Net Hospital

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## Background

- Occult hernias are hernias that are observed on radiologic imaging or at the time of surgery but not detected during a physical exam.
- These hernias are seen in 40% of Americans undergoing abdominal radiographic imaging (Olavarria).
- Little is known about the natural history of patients with occult hernias.
- No data exists on the natural history of patients with occult hernias including change in AW-QOL, need for surgery, and risk of acute incarceration/strangulation (Olavarria, Cherla).
- Our aim was to determine and report on the natural history of patients with occult hernias including the impact on AW-QOL, need for surgery, and risk of acute incarceration/strangulation.

## Methods

- IRB approval, STROBE Guidelines
- This was a prospective cohort study of patients who underwent a computed tomography (CT) abdomen/pelvis scan from 2016-2018.
- Primary outcome was change in AW-QOL using the modified Activities Assessment Scale (mAAS), a hernia-specific, validated survey (1=poor, 100=perfect).
- Secondary outcomes included elective and emergent hernia repairs.

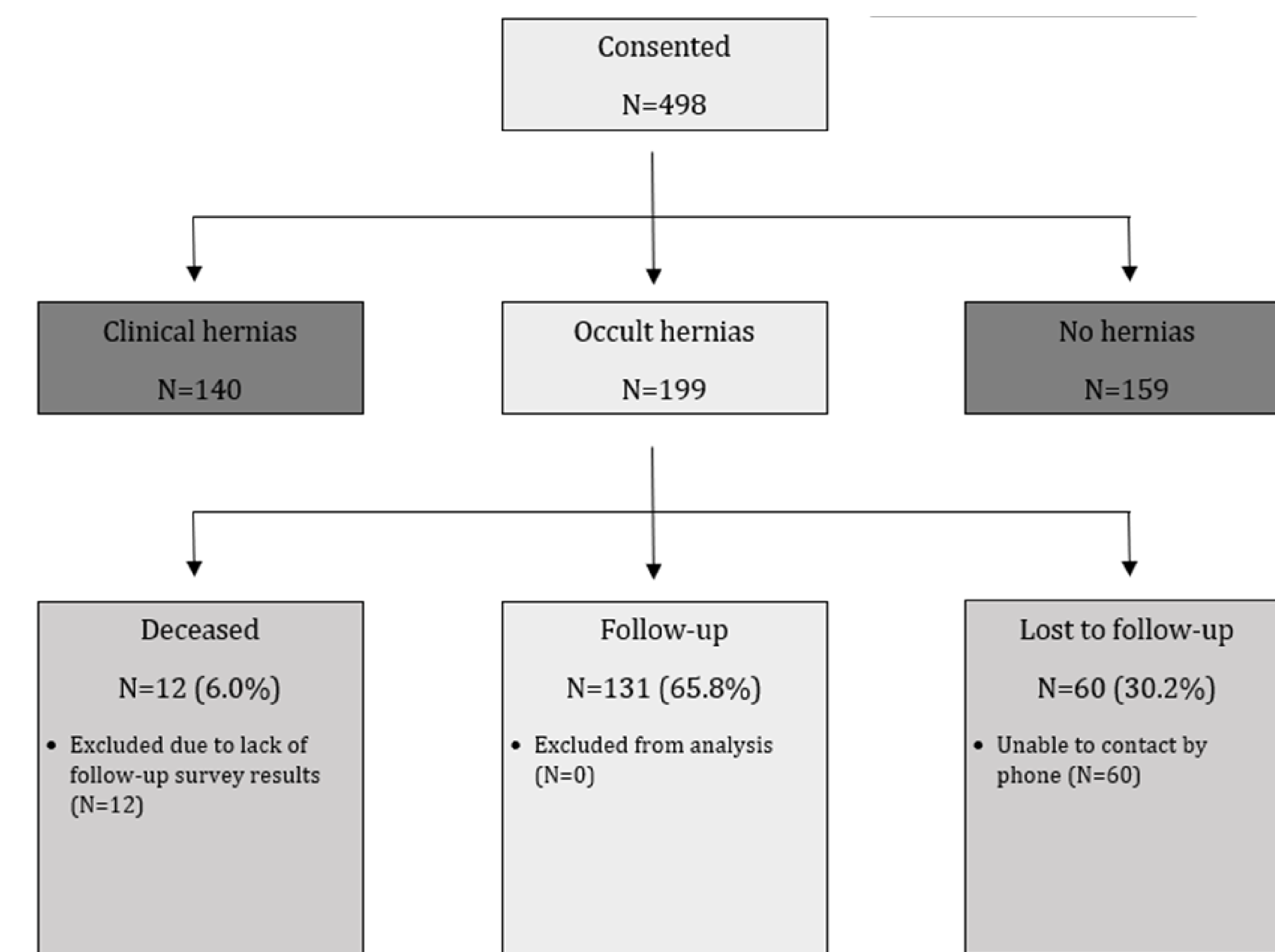


Figure 1. Patient enrollment flow chart

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

## Results

- A total of 131 (65.8%) patients with occult hernias completed follow-up with a median (IQR) of 15.4 (22.5) months.
- Nearly half of these patients (42.8%) experienced a decrease in their AW-QOL, 26.0% were unchanged, and 31.3% reported improvement.
- One-fourth of patients (27.5%) underwent abdominal surgery during the study period: 9.9% were abdominal procedures without hernia repair, 16.0% involved elective hernia repairs, and **1.5% were emergent hernia repairs.**
- AW-QOL improved for patients who underwent hernia repair (+11.2±39.7, p=0.043) while those who did not undergo hernia repair experienced no change in AW-QOL (-3.0±35.1).

Table 1. Baseline Characteristics of occult hernia patients

Characteristic	Overall N=131	Hernia Repair Group N=23	No Hernia Repair Group N=108	p-value
Age*	50.7 (11.6)	48.2 (9.3)	50.5 (11.9)	0.192
Sex				0.304
Female	85 (64.9%)	16 (69.6%)	69 (63.9%)	
Male	46 (35.1%)	7 (30.4%)	39 (36.1%)	
Ethnicity				0.267
Hispanic	97 (74.0%)	19 (82.6%)	78 (72.2%)	
African American	18 (13.7%)	1 (4.3%)	17 (15.7%)	
White	15 (11.5%)	3 (13.0%)	12 (11.1%)	
Asian	1 (0.8%)	0 (0%)	1 (0.9%)	
BMI**	29.9 (8.0)	33.0 (7.8)	30.1 (8.0)	0.229
BMI >30	69 (52.7%)	15 (65.2%)	54 (50.0%)	0.094
Prior abdominal surgery	80 (61.1%)	19 (82.6%)	61 (56.5%)	0.010
Prior hernia repair	2 (1.5%)	1 (4.3%)	1 (0.9%)	0.114
Hernia size (cm) **				
Width	0.9 (0.8)	1.4 (1.7)	0.9 (0.8)	0.004
Length	0.8 (1.0)	1.0 (3.8)	0.8 (0.6)	<0.001
Area	0.7 (1.5)	1.4 (1.0)	0.7 (1.2)	0.005

\* Mean (SD)  
\*\* Median (IQR)

Table 2. Change in AW-QOL

	Overall N=131	Subgroups		P-Value
		Hernia Repair N=23	No Hernia Repair N=108	
Baseline AW-QOL*	67.0 (31.7)	59.7 (35.3)	68.6 (30.9)	0.112
Follow-up AW-QOL*	66.5 (30.4)	71.0 (26.6)	48.9 (33.2)	0.222
Change in AW-QOL*	-0.5 (36.2)	+11.3 (39.7)	-3.0 (35.1)	0.043

AW-QOL: Abdominal wall quality of life  
\* Mean (SD)

## Discussion

- This is the first study to assess the natural history among a group of patients with occult hernias.
- While the study design is optimal to assess the natural history, it does not assess who would benefit from intervention.
- It appears that operative management in these patients improve their AW-QOL. Randomized controlled trials to determine appropriate management could be performed on lower-risk patients with occult hernias.

## Conclusion

- Occult hernias are not simply incidental findings as was previously thought. They have a significant impact on patient quality of life and have a real risk for incarceration/strangulation.
- Randomized controlled trials are needed to identify the optimal management strategy for patients with occult hernias noted on CT scan.
- Physicians should have informed conversations with patients with occult hernias on their management options and the risks and benefits of those choices.

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